# RETAIL TOMATO SALES:
## Greenhouse vs. Repacked Tomatoes
## Cleveland, Cincinnati, Toledo and Columbus, Ohio Stores
## October - December 1953

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SUMMARY

Retailers are the final and most costly link in the distribution chain. As the direct contact with consumers, their practices carry more weight with consumers than growers and many retailers realize. This is a preliminary study of some of the practices of retailers and the relation of these practices to sales.

Ninety-eight retailers in the cities of Cleveland, Cincinnati, Columbus and Toledo were interviewed regarding their sales of tomatoes during the period, October-December, 1953. Sales varied greatly among cities and among stores. Some of the factors related to these sales variations follow:

1. Greenhouse tomatoes accounted for three-fourths of tomato sales in Cleveland compared with about one-fourth of tomato sales in Cincinnati, and one-half in Columbus and Toledo.

2. Tomato sales per store were greater in individual chain than in independent stores. However, tomato sales as a percent of produce sales were almost twice as great in independent as in chain stores.

3. A much greater proportion of the produce was prepackaged in the chain than in the independent stores. The greatest differences were in the small and medium size stores.

4. Tomato sales were related to volume of produce sales but the percent that tomatoes were of produce sales was no different for large than small volume stores.

5. Displays of greenhouse tomatoes were larger than those of repacks in Cleveland but not in the other cities. Stores selling only greenhouse or only repacked tomatoes had larger tomato displays than those selling both kinds. Three-fourths of the stores in Cleveland displayed tomatoes loose on the table while three-fourths of those in other markets left them in the basket for display.

6. Sales of greenhouse tomatoes per square foot of display were about the same as for repacked tomatoes.

7. Retail tomato prices were lowest in Cleveland. While the wholesale price reported by the Federal Market News Service during the study was about 3 cents a

pound lower in Cleveland than in Columbus or Cincinnati, the retail price was between 4 and 6 cents a pound less.

8. Retailers estimated that a 10 cent a pound increase in prices would reduce greenhouse tomato sales by about 25 percent while a 10 cent a pound price decrease would increase sales by about 60 percent.

9. Independent stores catering to high-medium income customers had the highest sales of greenhouse tomatoes.

10. Spoilage loss in greenhouse tomatoes was only half as great as for repacked tomatoes. Smaller stores had a greater percentage spoilage loss than larger stores.

11. Retailers much more frequently ran feature sales and promotions for repacked than for greenhouse tomatoes. About two-thirds reported repacked tomato specials in the previous month while only one-fourth reported them in greenhouse tomatoes.

Discussion

The sales differences summarized above are no doubt partly accidental and partly due to differences in customer incomes and other characteristics. The analysis indicates, however, that a major part of the variation is due to observable differences in retail merchandising methods. These methods, in turn, apparently influence consumer reactions if continued over a period of time. Only such an influence can explain the great differences in the proportions of tomato sales made up by greenhouse tomatoes in Cleveland and the other cities. Retailers and growers can both benefit through improved merchandising as indicated in differences in sales.

What were some of the differences between practices of retailers in Cleveland and the other cities? (Also among those stores with low and high greenhouse tomato sales in each city). Four observed were:

a. Larger greenhouse display in relation to produce volume. Also more frequently a bulk display rather than a display in original basket.

b. Larger proportion of the stores handled only greenhouse tomatoes. More often, had greenhouse tomatoes for two different prices -- small or large at low prices and medium at higher prices.

c. Slightly to considerably lower retail price for greenhouse tomatoes.

d. More frequently featured greenhouse tomatoes in sales promotions and advertising.

Another striking difference observed was the lower sale of greenhouse tomatoes in the corporate chain than in the independent stores. These differences appeared to be due principally to differences in two practices. One was the relatively larger displays (almost twice as large relative to produce) of greenhouse tomatoes in independent stores and the other fact that chain stores more often had split displays with no emphasis on either greenhouse or tube tomatoes.

One other factor should be emphasized to retailers; namely that reported waste in greenhouse tomatoes averaged less than half as great as for repacked tomatoes. Also, the fact that many of the tubes of repacked tomatoes must be broken for removal of spoiled tomatoes is frequently overlooked in comparing the labor of handling greenhouse with that for repacked tomatoes.

# RETAIL TOMATO SALES

R. G. Henning and M. E. Cravens, Jr. 1/

## Introduction

Since World War II the competition of shipped "greenwrap" or "repacked" tomatoes with greenhouse tomatoes has become more severe. It has become increasingly difficult to obtain the price necessary to make the production of greenhouse tomatoes profitable. This competition of repacked tomatoes is expected to increase.

This study views the problem from the standpoint of the retailer. An attempt is made to determine the present competitive position of greenhouse with repacked tomatoes at the retail level, and to provide a partial explanation for the increased competition and how it may be met. For this purpose, data were obtained concerning the comparative sales, prices and spoilage of greenhouse and repacked tomatoes, and of merchandising practices which were believed to affect the sales of greenhouse tomatoes.

## Procedure

Data concerning the major phases of merchandising tomatoes were obtained during the period from October 26 to December 22, 1953 by means of interviews of produce managers in 23 retail food stores in Cleveland, 26 in Cincinnati, 24 in Columbus and 25 in Toledo, Ohio. Stores were selected in each market by a random sampling method after eliminating the extremely small stores and delicatessens. The sample of stores to be included in the study was drawn from retail grocery outlet route lists which were published by a newspaper in each city. Where the small stores or delicatessens could be identified from the information provided in these route lists, they were eliminated when the sample was drawn from the list. Where the small stores could not be identified in the route lists, these stores

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were visited by the interviewer and eliminated at the time of the visit. Alternate stores, selected from the route lists by the same method, were substituted for the stores that were eliminated.

Types and Sizes of Stores:

Approximately two out of three stores surveyed in Cincinnati, Columbus and Toledo were independent stores, but in Cleveland more chain than independent stores were surveyed (Table 1).

For both chain and independent stores the average produce sales of six produce items 2/ were greatest in Cleveland and least in Cincinnati. Average produce sales in chain stores were not as widely different among the four markets as were produce sales in independent stores.

Table 1. Number of Stores and Average Weekly Sales Per Store of Six Produce Items, Four Ohio Markets, Cleveland, Cincinnati, Columbus and Toledo, October to December, 1953.

| Markets | Chain stores | | Independent stores | | All stores | |
|---|---|---|---|---|---|---|
| | No. stores | Produce sales | No. stores | Produce sales | No. stores | Produce sales |
| | | (pounds) | | (pounds) | | (pounds) |
| Cleveland | 13 | 16,860 | 10 | 6,044 | 23 | 12,158 |
| Cincinnati | 11 | 9,065 | 15 | 2,033 | 26 | 5,256 |
| Columbus | 9 | 15,013 | 15 | 2,635 | 24 | 7,270 |
| Toledo | 11 | 11,722 | 14 | 4,356 | 25 | 7,597 |
| All Markets | 44 | 13,249 | 54 | 3,601 | 98 | 8,023 |

Sales in chain stores were between three and four times those in independent stores in each market.

Chain stores generally had a larger selection of produce items on display, sold more produce in prepackaged form and had better appearing produce departments than independent stores (Table 2). Produce prepackaging in the chain stores averaged

2/ As an indicator of size or volume of business in each store, the sales of six produce items, potatoes, oranges, apples, head lettuce, carrots and bananas were obtained along with tomato sales.

about three times as frequent as that in the independent stores. This difference was in the small and medium stores however. Larger stores in each group had a wider selection of produce items on display, more prepackaged sales and better appearing produce departments than smaller stores.

Table 2. Produce Department Ratings, Selection, Prepackaging, and Appearance by Store Size Group, Four Ohio Markets, October to December, 1953.

| Store Size | Chain stores: No. of stores | Chain stores: Selection* | Chain stores: Percent prepack.** | Chain stores: Appearance | Independent stores: No. of stores | Independent stores: Selection | Independent stores: Percent prepack. | Independent stores: Appearance |
|---|---|---|---|---|---|---|---|---|
| | | (no.items) | (percent) | (index) | | (no.items) | (percent) | (index) |
| Large | 14 | 60 | 52 | 4.6 | 2 | 80 | 65 | 5.0 |
| Medium | 21 | 55 | 45 | 4.5 | 9 | 52 | 26 | 4.0 |
| Small | 9 | 48 | 25 | 3.7 | 43 | 36 | 11 | 2.8 |
| All Stores | 44 | 55 | 44 | 4.4 | 54 | 41 | 16 | 3.1 |

*Actual number of choices of items in the fresh produce department.
**Percentage of 14 major items offered for sale that were prepackaged.
Average rating of display in produce department where 1 = Poor; 5 = Excellent.

Table 3. Produce Department Ratings, Selection, Prepackaging, and Appearance by Market, October to December 1953.

| Market | Chain stores: No. of stores | Chain stores: Selection | Chain stores: Percent prepack. | Chain stores: Appearance | Independent stores: No. of stores | Independent stores: Selection | Independent stores: Percent prepack. | Independent stores: Appearance |
|---|---|---|---|---|---|---|---|---|
| | | (no.items) | (percent) | (index) | | (no.items) | (percent) | (index) |
| Cleveland | 13 | 56 | 33 | 4.5 | 10 | 51 | 23 | 3.3 |
| Cincinnati | 11 | 54 | 42 | 4.3 | 15 | 37 | 5 | 2.4 |
| Columbus | 9 | 55 | 55 | 4.8 | 15 | 38 | 11 | 3.3 |
| Toledo | 11 | 56 | 48 | 4.1 | 14 | 40 | 26 | 3.4 |

The average selection of produce items, amount of prepackaged sales and produce department appearance were comparable for stores in the four markets (Table 3). However, Cincinnati independents sold a considerably smaller proportion of produce in the prepackaged form and were rated lower on produce display appearance than other groups of stores.

## Tomato Sales

Tomato sales were compared from the standpoint of total pound sales of greenhouse tomatoes per store; the relation of greenhouse to repacked tomato sales; and tomato sales in relation to those of selected produce items. Each of these measures indicated wide variations in sales among stores and among cities.

### Pounds Sold

A major factor in determining the pounds of tomatoes sold by any group of stores was the volume of produce business done by these stores. However, the breakdown of these tomato sales between greenhouse and repacked tomatoes varied depending on merchandising methods and management.

Weekly greenhouse tomato sales per store varied from 421 pounds in Cleveland stores to 38 pounds in Cincinnati (Table 4). Sales in Columbus and Toledo stores were between these extremes. Much of this variation in tomato sales was due to variations in total sales volume of stores surveyed in the four cities. Produce volume in Cleveland stores was about twice the average for the other three cities. However, after allowing for this difference, it was apparent that Cleveland stores sold over twice as many greenhouse tomatoes relative to volume of business as those in any of the other three cities.

Table 4. Average Weekly Sales Per Store of Six Produce Items and of Greenhouse and Repacked Tomatoes in Pounds and as Percent of Produce Sales, Four Ohio Markets, October to December 1953.

| Market | Produce sales | Tomato sales | | | Percent of produce | | |
|---|---|---|---|---|---|---|---|
| | | Green-house | Re-packed | Total | Green-house | Re-packed | Total |
| | (lbs.) | (lbs.) | (lbs.) | (lbs.) | (percent) | (percent) | (percent) |
| Cleveland | 12,158 | 421 | 112 | 534 | 3.5 | 0.9 | 4.4 |
| Cincinnati | 5,256 | 38 | 94 | 132 | 0.8 | 1.7 | 2.5 |
| Columbus | 7,270 | 90 | 110 | 200 | 1.2 | 1.6 | 2.8 |
| Toledo | 7,597 | 110 | 107 | 217 | 1.4 | 1.4 | 2.9 |
| All Markets | 8,023 | 159 | 106 | 265 | 2.0 | 1.3 | 3.3 |

It is of interest to note that although greenhouse tomato sales per store varied greatly among the four cities, the sales of repacked (tube) tomatoes varied only slightly. Cincinnati stores sold 94 pounds compared with 112 pounds for Cleveland stores.

Percent Greenhouse Tomatoes of Total Tomato Sales

Greenhouse tomatoes accounted for 60 percent of total tomato sales in the sample stores in the four cities (Table 5). In Cleveland stores the greenhouse tomato accounted for 79 percent of total sales compared with 28 percent in Cincinnati stores.

Percent Tomatoes of Produce Sales a/

Tomatoes accounted for slightly over 3 percent of sales in pounds of six major produce items (Table 4). Again Cleveland stores led with over 4 percent of sales made up by tomatoes. Tomato sales in the other cities varied from 2.5 in Cincinnati to 2.9 in Toledo (Figure 1).

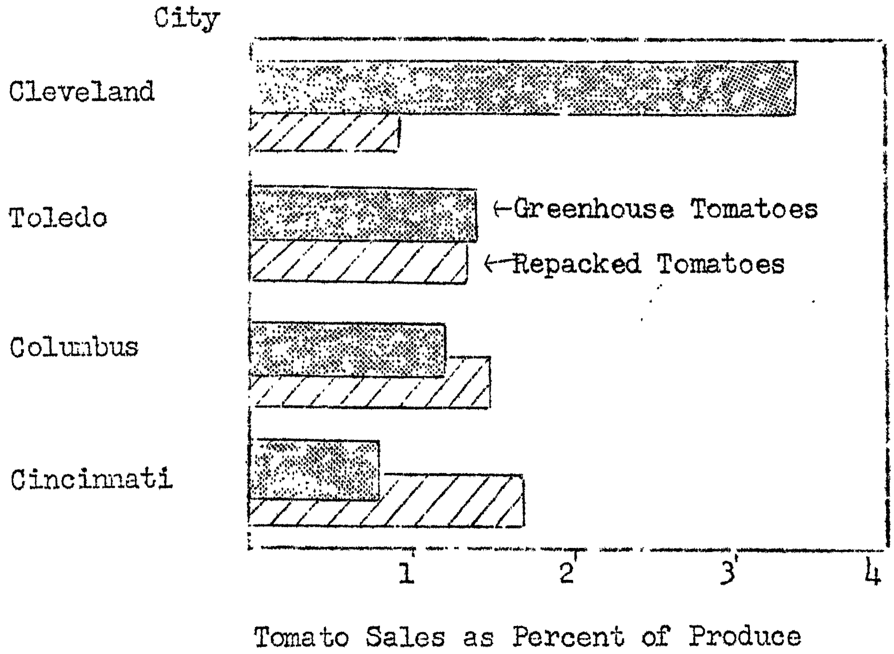
Greenhouse tomato sales as a percent of produce sales varied much more than total tomato sales. In Cleveland, greenhouse tomato sales amounted to 3.5 percent of pound sales of major produce items (more than combined sales of greenhouse and repacked tomatoes in any other city). In Cincinnati, the sales of greenhouse tomatoes were only 0.8 percent of those of the six major produce items.

Table 5. Amounts and Percentage of Weekly Tomato Sales that were Greenhouse and Repacked Tomatoes, Four Ohio Markets, October to December 1953.

| Market | No. of Stores | Total sales | | | Percent of total | | |
|---|---|---|---|---|---|---|---|
| | | Greenhouse | Repacked | Total | Greenhouse | Repacked | Total |
| | | (pounds) | (pounds) | (pounds) | (percent) | (percent) | (percent) |
| Cleveland | 23 | 9,689 | 2,581 | 12,270 | 79.0 | 21.0 | 100.0 |
| Cincinnati | 26 | 992 | 2,447 | 3,436 | 28.9 | 71.1 | 100.0 |
| Columbus | 24 | 2,162 | 2,644 | 4,806 | 45.0 | 55.0 | 100.0 |
| Toledo | 25 | 2,756 | 2,679 | 5,435 | 50.7 | 49.3 | 100.0 |
| All Markets | 98 | 15,599 | 10,348 | 25,947 | 60.1 | 39.9 | 100.0 |

a/ Pounds of six major produce items sold during the same week. See footnote 2 page 6 .

Figure 1. Tomato Sales As Percent Of Produce Sales, Four Major Markets, October - December, 1953




Only in Cleveland were greenhouse tomato sales far above those of repacks. In Cincinnati the reverse was true. Total tomato sales (greenhouse and repacked combined) were greater in Cleveland than in the other cities.

Type of Store Management and Tomato Sales

Chain operated stores sold 53 percent of their tomato volume in greenhouse tomatoes while independently operated stores sold 72 percent (Table 6). This difference in favor of independent stores in greenhouse tomato sales was noted in each of the four cities. It will be partially explained later in the section on size of display.

Table 6. Amounts and Percent of Tomato Sales That Were Greenhouse and Repacked Tomatoes, Chain and Independent Stores, Four Ohio Markets, Oct. to Dec. 1953.

| Market | Total tomato sales | | | Percent of total | | |
|---|---|---|---|---|---|---|
| | Greenhouse | Repacked | All tomatoes | Greenhouse | Repacked | Total |
| | (pounds) | (pounds) | (pounds) | (percent) | (percent) | (percent) |
| Chain Stores: | | | | | | |
| Cleveland | 5,617 | 2,153 | 7,770 | 72.3 | 27.7 | 100.0 |
| Cincinnati | 536 | 1,533 | 2,069 | 25.9 | 74.1 | 100.0 |
| Columbus | 988 | 1,951 | 2,939 | 33.6 | 66.4 | 100.0 |
| Toledo | 1,344 | 1,890 | 3,234 | 41.6 | 58.4 | 100.0 |
| All Markets | 8,485 | 7,527 | 16,012 | 53.0 | 47.0 | 100.0 |
| Independent Stores: | | | | | | |
| Cleveland | 4,072 | 429 | 4,501 | 90.5 | 9.5 | 100.0 |
| Cincinnati | 456 | 911 | 1,367 | 33.4 | 66.6 | 100.0 |
| Columbus | 1,174 | 692 | 1,866 | 62.9 | 37.1 | 100.0 |
| Toledo | 1,412 | 789 | 2,201 | 64.2 | 35.8 | 100.0 |
| All Markets | 7,114 | 2,821 | 9,935 | 71.6 | 28.4 | 100.0 |

Table 7. Square Feet of Tomato Display Area Per Store and Pounds of Tomato Sales Per Square Foot of Display Area, Ohio Markets, October to December, 1953.

| Market | Display area | | Sales per sq. ft. | |
|---|---|---|---|---|
| | Greenhouse | Repacked | Greenhouse | Repacked |
| | (sq.ft.) | (sq.ft.) | (lbs.) | (lbs.) |
| Cleveland | 7.0 | 1.1 | 60.6 | 99.3 |
| Cincinnati | 1.2 | 2.4 | 32.0 | 38.5 |
| Columbus | 2.2 | 2.5 | 41.6 | 43.3 |
| Toledo | 2.6 | 2.6 | 42.7 | 41.5 |
| All Markets | 3.1 | 2.1 | 50.7 | 48.1 |

Display of Tomatoes

Except in Cleveland stores, the average repacked tomato display was as large as or larger than the greenhouse tomato display. Cleveland stores had approximately five times as great a greenhouse as a repacked tomato display, and about three times as large a greenhouse tomato display as stores in Columbus and Toledo.

The average sales of both greenhouse and repacked tomatoes per square foot of display were greater in Cleveland than in the other markets (Table 7).

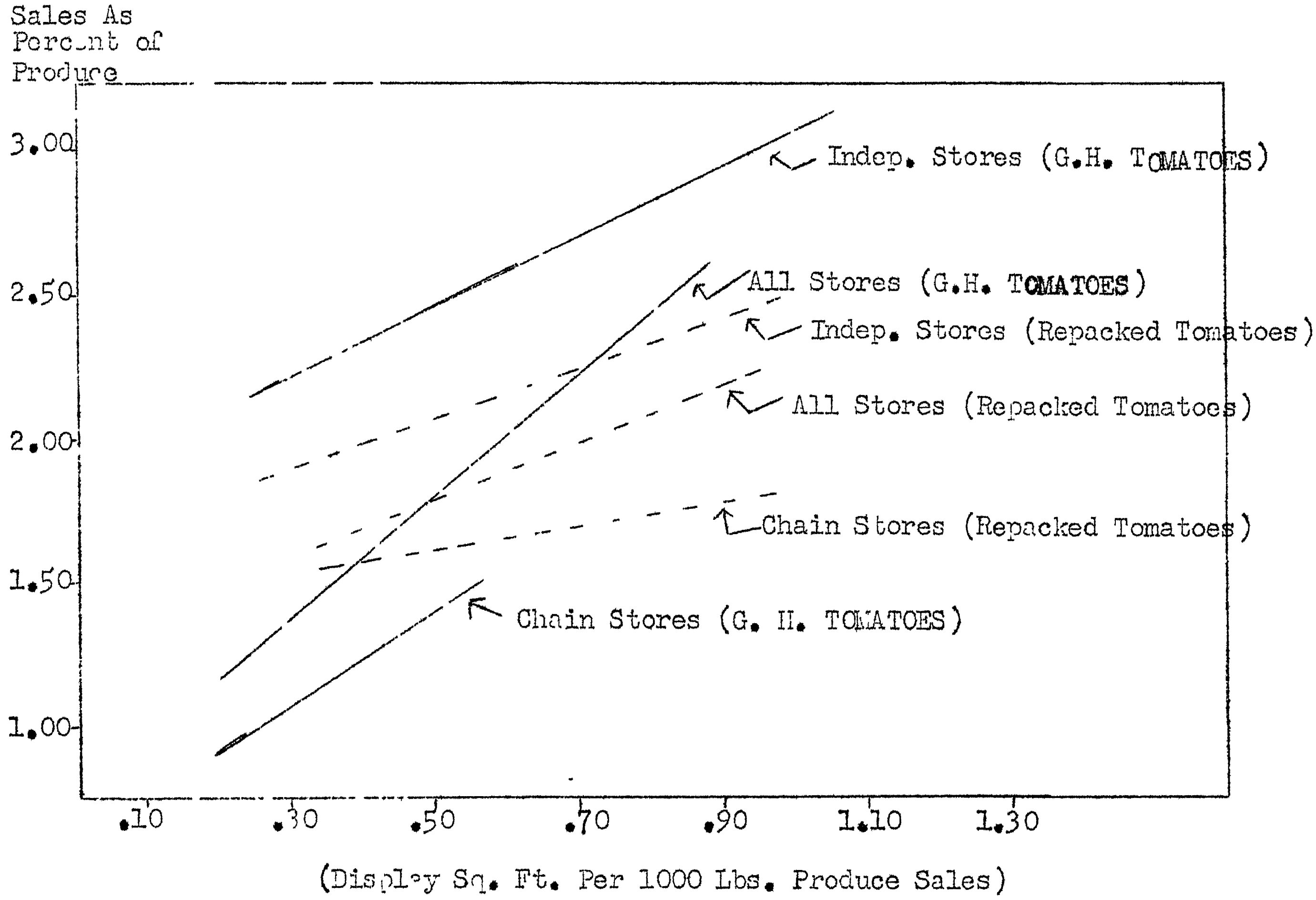
Greenhouse and repacked tomato displays in relation to volume of produce sales were approximately the same among chain stores of the four markets. The only exception was the repacked tomato display in Cleveland chains, which was less than half as large in relation to produce sales volume as that for chain stores in other markets. Except in Cleveland chains, repacked tomatoes were given a larger display than were greenhouse tomatoes. (Table 8).

In stores which sold both kinds of tomatoes, the chains had much smaller displays of tomatoes relative to produce sales than did the independent stores. Stores which sold only greenhouse or repacked tomatoes gave a larger display space to tomatoes in relation to the volume of produce sales than stores which sold both kinds of tomatoes (Table 9).Chain stores displaying greenhouse tomatoes only had 1.2 square feet of tomato display per 1,000 pounds sales of major produce items. Those stores with both types of tomatoes had a total of only 0.5 square feet display per 1,000 pounds produce.

In all stores the larger the tomato display, the higher the sales of tomatoes (Fig. 2).

Stores with large tomato display in relation to volume of produce sales sold more of each kind of tomatoes but the dollar value of the sales per square foot was less than in stores with a relatively smaller tomato displays. Chain stores as a rule had much smaller tomato displays relative to produce sales volume than did the independent stores. In stores where both greenhouse and repacked tomatoes were displayed, the space devoted to greenhouse tomatoes was less than one half as great in chain as in independent stores.

Figure 7. Relation of size of Tomato Display and Tomato Sales, Chain and Independent Stores, Four Ohio Markets, October - December, 1953




Tomato sales, both greenhouse and repacked, increased as the size of the tomato display increased. Displays of greenhouse tomatoes and their sales relative to other produce sales were smaller in chain than independent stores.

Table 8. Square Feet of Greenhouse and Repacked Tomato Display Area Per 1000 Pounds Sales of Six Produce Items, Chain Independent and all Stores, Four Ohio Markets, October to December, 1953.

| Market | Chain stores | | | Independent stores | | | All stores | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. | Display | | No. | Display | | No. | Display | |
| | Stores | G.H. | Repack | Stores | G.H. | Repack | Stores | G.H. | Repack |
| Stores which sold both kinds of tomatoes | | | | | | | | | |
| Cleveland | 7 | 0.2 | 0.1 | 2 | 0.5 | 0.1 | 9 | 0.3 | 0.1 |
| Cincinnati | 8 | 0.2 | 0.4 | 3 | 0.7 | 0.3 | 11 | 0.4 | 0.4 |
| Columbus | 9 | 0.2 | 0.3 | 9 | 0.7 | 0.8 | 18 | 0.4 | 0.5 |
| Toledo | 8 | 0.2 | 0.4 | 9 | 0.3 | 0.3 | 17 | 0.3 | 0.3 |
| All Markets | 32 | 0.2 | 0.3 | 23 | 0.5 | 0.4 | 55 | 0.3 | 0.3 |
| Stores which sold greenhouse only | | | | | | | | | |
| Cleveland | 6 | 1.2 | --- | 8 | 0.9 | --- | 14 | 1.1 | --- |
| Cincinnati | 0 | --- | --- | 3 | 1.4 | --- | 3 | 1.4 | --- |
| Columbus | 0 | --- | --- | 4 | 0.8 | --- | 4 | 0.8 | --- |
| Toledo | 2 | 1.0 | --- | 4 | 1.1 | --- | 6 | 1.1 | --- |
| All Markets | 8 | 1.2 | --- | 19 | 0.9 | --- | 27 | 1.1 | --- |
| Stores which sold repacked only | | | | | | | | | |
| Cleveland | 0 | --- | --- | 0 | --- | --- | --- | --- | --- |
| Cincinnati | 3 | --- | 0.8 | 7 | --- | 0.9 | 10 | --- | 0.8 |
| Columbus | 0 | --- | --- | 2 | --- | 1.2 | 2 | --- | 1.2 |
| Toledo | 1 | --- | 0.6 | 1 | --- | 4.3 | 2 | --- | 0.8 |
| All Markets | 4 | --- | 0.7 | 10 | --- | 1.0 | 14 | --- | 0.8 |

Table 9. Comparison of Greenhouse and Repacked Tomato Sales in Stores Selling Both Greenhouse and Repacked Tomatoes by Relative Size of Tomato Display, Four Ohio Markets, October to December, 1953.

| Relative Size of Tomato Display | Number of Stores | Greenhouse tomatoes | | Repacked tomatoes | |
|---|---|---|---|---|---|
| | | Display per 1000 lbs. Produce | Sales as Percent of Produce | Display per 1000 lbs. Produce | Sales as Percent of Produce |
| All stores: | | (sq.ft.) | (percent) | (sq.ft.) | (percent) |
| High | 24 | 0.9 | 2.6 | 1.0 | 2.2 |
| Low | 31 | 0.2 | 1.2 | 0.3 | 1.6 |
| Chain stores: | | | | | |
| High | 8 | 0.6 | 1.5 | 1.0 | 1.8 |
| Low | 24 | 0.2 | 0.9 | 0.3 | 1.6 |
| Independent stores: | | | | | |
| High | 16 | 1.0 | 3.1 | 1.0 | 2.5 |
| Low | 7 | 0.2 | 2.1 | 0.3 | 1.9 |

Tomato Sales in Stores Which Had Greenhouse Only, Repacked Only, and Both Types of Tomatoes.

Tomato sales (in pounds) in stores that sold only greenhouse tomatoes were about as large as sales of both greenhouse and repacked tomatoes in stores that sold both kinds of tomatoes. They were much greater as a proportion of produce sales (Fig. 3). Tomato sales in stores which sold only repacks were only 60 percent as great in relation to store volume as in stores selling only greenhouse tomatoes (Table 10).

Table 10. Weekly Sales of Tomatoes, For Stores that displayed one kind, and Stores which had both kinds of Tomatoes, Four Major Ohio Markets, October to December, 1953.

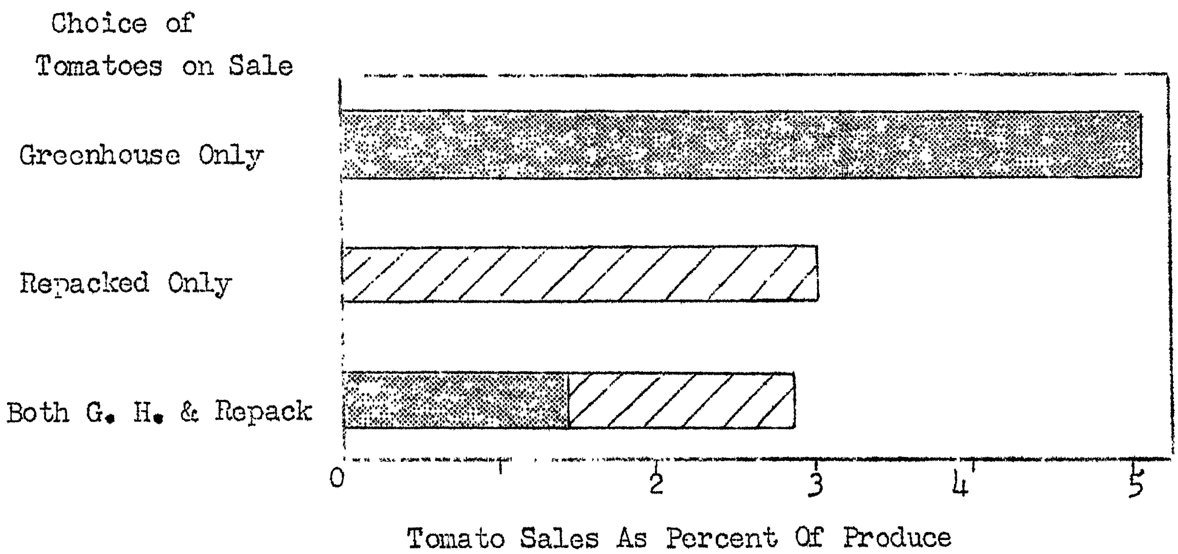
| Kind of Tomatoes Sold | Number of stores | Average produce sales | Average Tomato Sales | | | Percent of Produce | | |
|---|---|---|---|---|---|---|---|---|
| | | | Green-house | Re-packed | Total | Green-house | Re-packed | Total |
| | | (lbs) | (lbs) | (lbs) | (lbs) | (percent of produce) | | |
| Chain Stores | | | | | | | | |
| Greenhouse | 8 | 9,900.6 | 372 | --- | 372 | 3.8 | --- | 3.8 |
| Repacked | 4 | 5,789.8 | --- | 165 | 165 | --- | 2.8 | 2.8 |
| Both | 32 | 15,019.5 | 172 | 215 | 387 | 1.2 | 1.4 | 2.6 |
| Independent Stores | | | | | | | | |
| Greenhouse | 19 | 3,300.6 | 218 | --- | 218 | 6.6 | --- | 6.6 |
| Repacked | 10 | 2,222.5 | --- | 70 | 70 | --- | 3.2 | 3.2 |
| Both | 25 | 4,449.9 | 119 | 85 | 203 | 2.8 | 1.8 | 4.6 |

The percent that tomato sales (pounds) were of produce sales averaged much greater for stores that sold only greenhouse tomatoes than for stores selling only repacked tomatoes, or both types of tomatoes.

Prices of Tomatoes

Average retail prices of both greenhouse and repacked tomatoes tended to be lowest in Cleveland and highest in Cincinnati stores, but the differences among the four markets were not great (Table 11). The difference between retail prices of greenhouse and repacked tomatoes also tended to be lower in Cleveland than in the other three markets.

Figure 3. Relation of Choice of Tomatoes Displayed and Rate of Tomato Sales, Four Ohio Markets, October - December, 1954




Highest Tomato Sales were found in stores that displayed and sold only greenhouse tomatoes. Most of these were located in Cleveland.

The reported wholesale price 1/ of No. 1 medium greenhouse tomatoes in Cleveland during the period of the study averaged about 25 cents an 8 pound basket less than those in Columbus and Cincinnati. The retail price of greenhouse tomatoes in Cleveland's stores averaged about 45 cents a basket below those in Cincinnati during the period of the study. The reason for this lower spread between wholesale and retail prices in Cleveland cannot be answered by this study.

Prices of greenhouse tomatoes in each of the four markets increased steadily over the nine week period. Prices of repacked tomatoes increased during the first five weeks, after which they leveled off.

Table 11. Average Price Per Pound* of Greenhouse and Repacked Tomatoes Sold, Chain, Independent and All Stores, Four Ohio Markets, October to December, 1953.

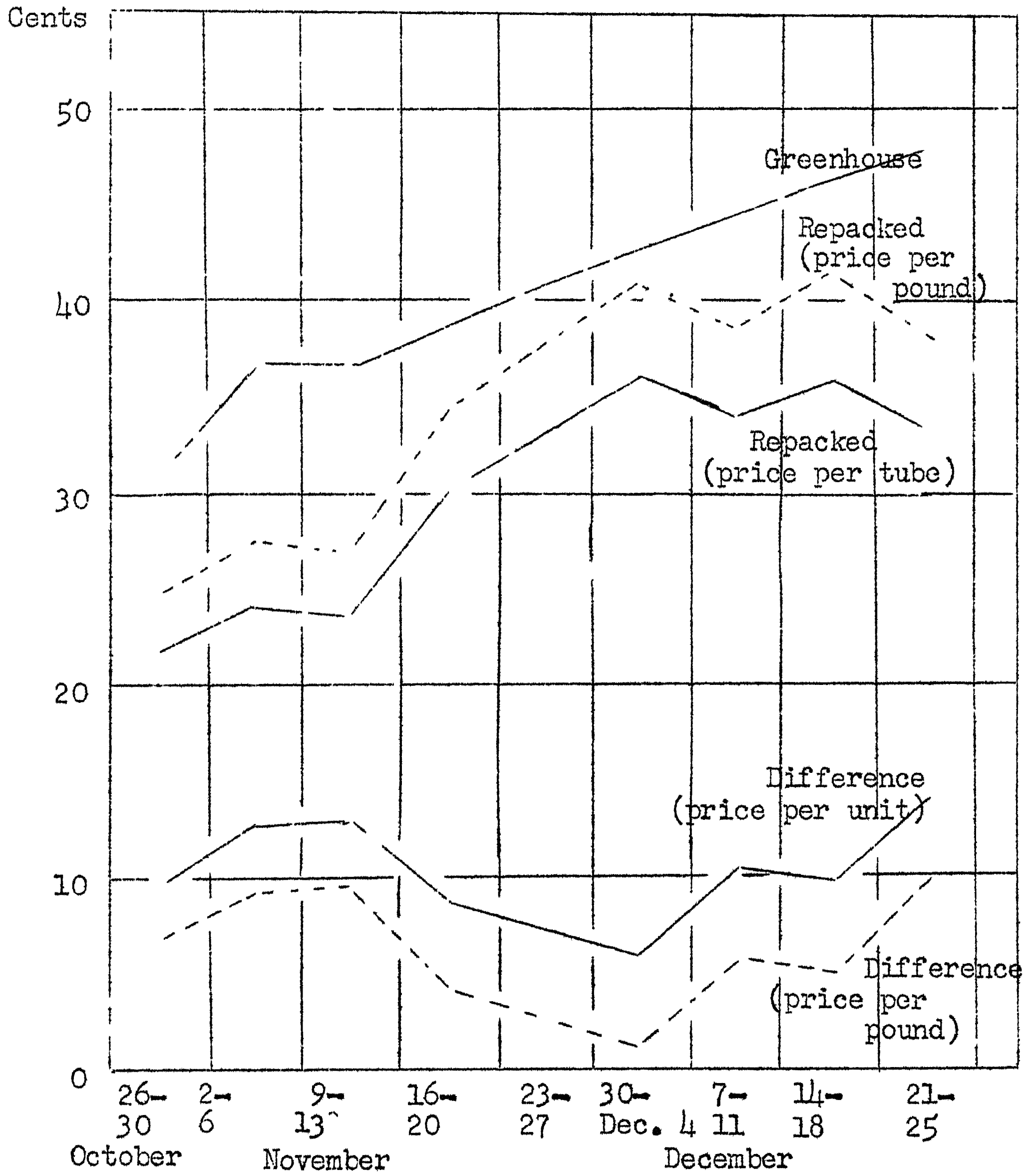
| Market | Chain stores | | Independ. stores | | All stores | | |
|---|---|---|---|---|---|---|---|
| | Green-house | Re-packed | Green-house | Re-packed | Green-house | Re-packed | Average price diff |
| | (cents per pound) | | | | | | |
| Cleveland | 39.4 | 33.7 | 32.7 | 20.6 | 36.6 | 31.5 | 5.1 |
| Cincinnati | 41.5 | 36.5 | 43.0 | 31.3 | 42.2 | 34.6 | 7.6 |
| Columbus | 43.8 | 34.4 | 38.0 | 31.0 | 40.7 | 33.5 | 7.2 |
| Toledo | 45.2 | 31.1 | 42.0 | 38.2 | 43.6 | 33.2 | 10.4 |
| All Markets | 41.0 | 33.8 | 36.1 | 31.5 | 38.7 | 33.2 | 5.5 |

*The actual sales unit of greenhouse tomatoes is one pound while that for repacked tomatoes is a tube weighing 12-14 ounces.

Greenhouse tomato prices for the nine week period averaged about 10 cents per unit (or 6 cents per pound) higher than that of repacked tomatoes (Fig. 4). This margin varied from 9 cents per unit (5 cents per pound) in Cleveland and Toledo stores to almost 13 cents per unit (8.6 cents per pound) in Columbus stores.

1/ Published in U.S.D.A.; A.M.S. misc. Daily Reports for Cleveland, Cincinnati, & Columbus.

Figure 4. Comparison of Retail Prices of Greenhouse and Repacked Tomatoes, Four Ohio Markets, October 26 to December 25, 1953



The price margin of greenhouse over repacks varied from a low of about one and one-half cents to nearly ten cents per pound during the nine week period. This margin was lowest when the price of repacked tomatoes was highest.1/

## Estimated Effect of Price Changes on Tomato Sales

The average estimate of all retailers visited was that 10 cent a pound increase for the following week in the retail price of greenhouse tomatoes would reduce sales by about 25 percent while a 10 cent a pound decrease would increase sales by about 60 percent (Table 12). The effect of price changes on repacked tomato sales was similar to that for greenhouse tomatoes.

Table 12. Estimated Tomato Sales if Prices 10 cents Higher or 10 cents Lower, by Size of Store, Four Major Ohio Markets, October - December, 1953.

| Size of Stores | Greenhouse tomato price: 10 cents higher | Greenhouse tomato price: 10 cents lower | Repacked tomato price: 10 cents higher | Repacked tomato price: 10 cents lower |
|---|---|---|---|---|
| | (sales as percent of sales for previous week) | | | |
| Large | 85 | 173 | 65 | 172 |
| Medium | 62 | 154 | 64 | 159 |
| Small | 70 | 146 | 58 | 162 |
| All Stores | 74 | 160 | 65 | 167 |

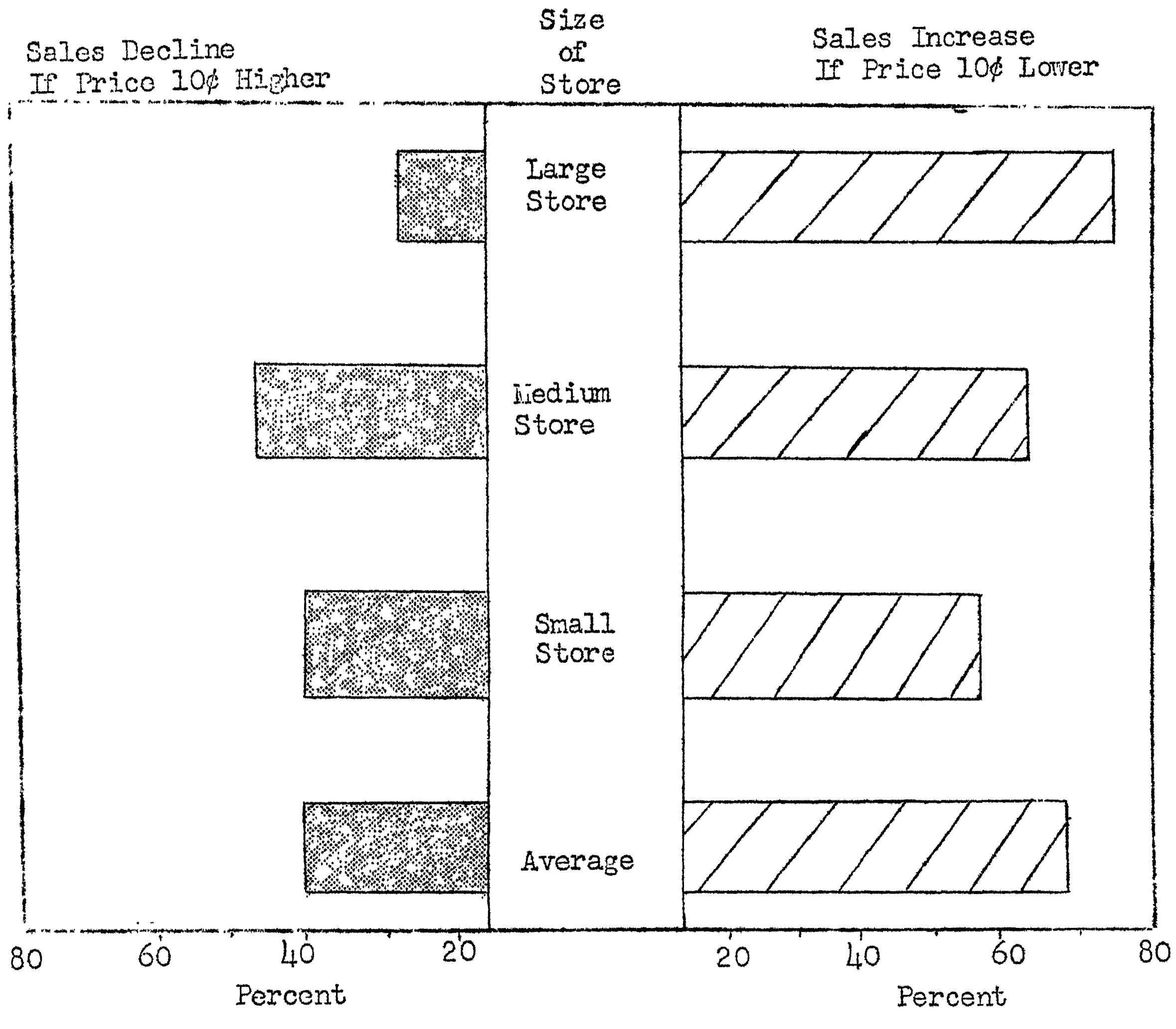
Operators of large stores expected a larger percentage effect of price decreases and smaller effect of price increases on sales than did those for medium and small stores (Fig. 5). Individual stores in both the chain and independent groups varied widely from these average responses to price changes.

## Effect of Customer Income Level on Sales of Tomatoes

Stores patronized by customers with higher than "average" incomes sold larger amounts of greenhouse tomatoes, and more greenhouse tomatoes as a percent of produce sales than those with low income customers (Table 13). Sales of repacked

1/ The average prices of greenhouse and repacked tomatoes and the differential between these prices plotted on charts 1 and 2 and discussed in the preceding paragraph, are simple averages of prices which were obtained from 10 stores in each market which were visited periodically during the study. These prices and differentials should not be confused with those shown in Table 28, which are weighed by volume of tomatoes sold.

Figure 5. Expected Greenhouse Tomato Sales Where Retail Price Increased Or Decreased by 10 Cents a Pound, Four Major Markets, Ohio, October - December, 1953.




A 10 cent a pound decline in the retail price of Greenhouse Tomatoes influenced expected sales more than a similar price increase. The total expected value of tomatoes sold (price x amount) is greater with the lower rather than the higher price.

tomatoes were less in the high income independent stores. The value of tomato sales per store, and per square foot of display area in independent stores was also greater for those stores patronized by "high income" customers. Incomes of customers was not related to the sales of tomatoes in the chain stores studied.

Table 13. Relation of Customer Income to Tomato Sales, Chain, Independent and All Stores, Four Ohio Markets, October - December, 1953.

| Type of Store and Income Group | No. Stores | Tomato sales as percent of produce | | Value of tomato sales | | Value of tomato sales per sq. ft. | |
|---|---|---|---|---|---|---|---|
| | | G. H. | Repack | G. H. | Repack | G. H. | Repack |
| | | (percent) | | ($) | ($) | ($) | ($) |
| Chain Stores | | | | | | | |
| High | 22 | 1.4 | 1.2 | 98.89 | 61.53 | 17.48 | 16.21 |
| Average | 18 | 1.5 | 1.4 | 55.96 | 56.11 | 16.79 | 16.83 |
| Low | 4 | 1.5 | 1.3 | 73.20 | 45.18 | 19.52 | 18.07 |
| Independent Stores | | | | | | | |
| High | 10 | 4.4 | 0.8 | 95.81 | 16.27 | 34.22 | 19.14 |
| Average | 27 | 4.2 | 1.6 | 45.38 | 15.52 | 23.56 | 17.46 |
| Low | 17 | 2 | 1.6 | 22.42 | 18.10 | 13.61 | 10.61 |
| All Stores | | | | | | | |
| High | 32 | 1.9 | 1.2 | 97.93 | 47.39 | 21.73 | 16.48 |
| Average | 45 | 2.3 | 1.4 | 48.43 | 30.79 | 19.46 | 16.50 |
| Low | 21 | 1.8 | 1.5 | 32.10 | 23.25 | 15.67 | 12.52 |

## Spoilage of Tomatoes

Spoilage loss of repacked tomatoes (as a percent of tomato sales) for stores in the four markets averaged about twice that of greenhouse tomatoes (Table 14). Spoilage in greenhouse tomatoes was highest in Cincinnati stores (3.3 percent) and lowest in Cleveland and Columbus stores (1.7 percent.)

Table 14. Reported Loss of Greenhouse and Repacked Tomatoes Because of Spoilage, Chain, Independent and All Stores, Four Ohio Markets, October to December, 1953.

| Market | Chain stores | | Independ. stores | | All stores | |
|---|---|---|---|---|---|---|
| | Green-house | Re-packed | Green-house | Re-packed | Green-house | Re-packed |
| | (percent of sales) | | | | | |
| Cleveland | 1.6 | 3.1 | 1.9 | 1.5 | 1.7 | 2.9 |
| Cincinnati | 2.5 | 5.5 | 4.2 | 4.2 | 3.3 | 5.9 |
| Columbus | 1.9 | 4.8 | 1.5 | 6.5 | 1.7 | 5.2 |
| Toledo | 3.4 | 2.5 | 1.5 | 8.2 | 2.4 | 4.2 |
| All Markets | 2.0 | 3.9 | 1.9 | 5.5 | 2.0 | 4.3 |

The amount of spoilage of greenhouse and repacked tomatoes apparently was not closely associated with type of store management, (chain or independent). The smaller stores generally suffered a much greater spoilage precentage loss in both greenhouse and repacked tomatoes than the larger stores, (Table 15). Even here, however, the spoilage loss on greenhouse tomatoes was relatively small (Fig. 6).

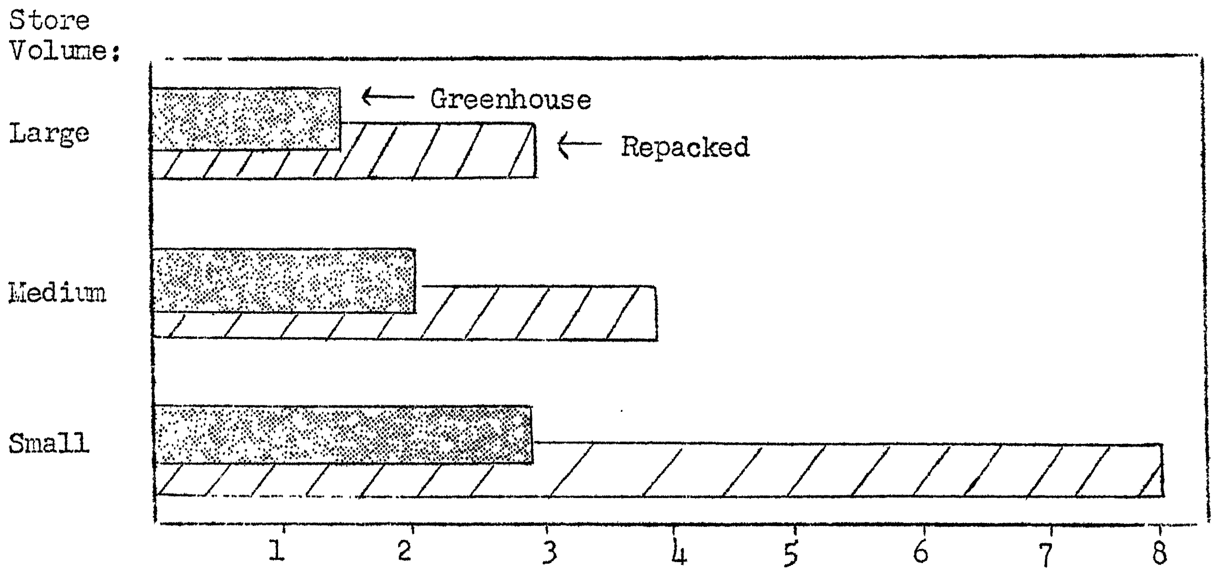
Table 15. Loss of Greenhouse and Repacked Tomatoes Because of Spoilage by Size of Store, Chain, Independent and All Stores, Four Ohio Markets, October to December, 1953.

| Store Size Group | Chain stores | | Independent stores | | All Stores | |
|---|---|---|---|---|---|---|
| | Green-house | Re-packed | Green-house | Re-packed | Green-house | Re-packed |
| | (percent of sales) | | | | | |
| Large | 1.4 | 3.3 | 1.8 | 1.2 | 1.5 | 3.1 |
| Medium | 3.1 | 4.3 | 1.2 | 2.8 | 2.1 | 4.0 |
| Small | 2.1 | 8.6 | 3.2 | 7.8 | 3.0 | 8.0 |

Refrigeration

Stores that held greenhouse tomatoes under refrigeration (lower than 50°F.) suffered slightly greater percentage spoilage loss than stores that did not refrigerate (Table 16). The spoilage loss of repacked tomatoes, however, was greater in stores that did not use refrigeration.

Figure 6. Comparison of Tomato Spoilage Waste by Store Size. Four Major Ohio Markets, Oct. - Dec., 1953.




Waste was more than twice as great in small as large volume stores. Waste in greenhouse tomatoes was less than half as great as in repacked tomatoes for each store size group.

Table 16. Percentage Spoilage Loss of Greenhouse and Repacked Tomatoes in Stores which Refrigerated (less than 50°F.) and in Stores which did not Refrigerate Tomatoes, Four Ohio Markets, October to December, 1953.

| Market | Average produce sales | | Greenhouse | | Repacked | |
|---|---|---|---|---|---|---|
| | Refrig. | Not refrig. | Refrig. | Not refrig. | Refrig. | Not refrig. |
| | lbs. | lbs. | (percent spoilage loss) | | | |
| Cleveland | 18,225 | 9,503 | 1.8 | 1.7 | 1.5 | 5.8 |
| Cincinnati | 6,374 | 4,260 | 3.5 | 3.2 | 4.3 | 7.6 |
| Columbus | 6,616 | 8,053 | 1.6 | 1.5 | 5.2 | 5.3 |
| Toledo | [illegible] | 8,176 | 5.7 | 1.9 | 4.7 | 3.8 |
| All Markets | 8,473 | 7,819 | 2.3 | 1.8 | 3.8 | 5.2 |

Approximately one-half of the stores included in the study kept tomatoes under refrigeration (less than 50°F.). Fewer stores in Cleveland refrigerated than did not refrigerate each type of tomatoes, while the reverse was true in Cincinnati (Table 17). More chain than independent stores in the four cities used refrigeration on tomatoes.

Table 17. Number of stores which Refrigerated (less than 50°F.) and Stores which did not Refrigerate Greenhouse and Repacked Tomatoes, Chain, Independent and All Stores, Four Ohio Markets, October to December, 1953.

| Market | Greenhouse tomatoes | | Repacked tomatoes | |
|---|---|---|---|---|
| | Less Than 50°F. | 50°F. or more | Less Than 50°F. | 50°F. or more |
| | (number of stores) | | | |
| Cleveland | 7 | 16 | 5 | 13 |
| Cincinnati | 11 | 4 | 13 | 8 |
| Columbus | 12 | 12 | 11 | 11 |
| Toledo | 8 | 13 | 10 | 11 |
| Chain Stores | | | | |
| All Markets | 23 | 17 | 25 | 15 |
| Cleveland | 6 | 7 | 5 | 7 |
| Cincinnati | 6 | 2 | 7 | 3 |
| Columbus | 6 | 3 | 6 | 3 |
| Toledo | 5 | 5 | 7 | 2 |
| Independent Stores | | | | |
| All Markets | 15 | 33 | 11 | 31 |
| Cleveland | 1 | 10 | 0 | 7 |
| Cincinnati | 6 | 3 | 6 | 6 |
| Columbus | 5 | 10 | 3 | 9 |
| Toledo | 3 | 10 | 2 | 9 |
| All Markets | 38 | 45 | 39 | 43 |

Delivery of Tomatoes

More than three-fourths of the stores in the four markets received their most recent delivery of tomatoes less than three days prior to the day the store was visited Approximately one-half of the stores received as many as six deliveries of tomatoes per week. A few (about 5 percent) of the stores received less than three deliveries per week. Chain operated stores generally had more frequent tomato deliveries than did independent stores.

Table 18. Type of Retail Display and Container in Which Greenhouse and Repacked Tomatoes were Displayed, Four Ohio Markets, October To December, 1953.

| Type of Display and Container | Greenhouse tomatoes: Cleveland | Cincinnati | Columbus | Toledo | All Mkts | Repacked tomatoes: Cleveland | Cincinnati | Columbus | Toledo | All Mkts |
|---|---|---|---|---|---|---|---|---|---|---|
| | (number of stores) | | | | | | | | | |
| Container | | | | | | | | | | |
| Basket or carton | 6 | 11 | 18 | 17 | 52 | 2 | 8 | 5 | 0 | 15 |
| Rack or table | 17 | 4 | 2 | 5 | 28 | 9 | 12 | 15 | 20 | 57 |
| Type of Display | | | | | | | | | | |
| Jumbled | 19 | 13 | 18 | 20 | 70 | 0 | 2 | 1 | 0 | 3 |
| Layer or row | 4 | 2 | 2 | 2 | 10 | 11 | 18 | 19 | 20 | 68 |

Type of Display and Container

About three-fourths of the stores in Cincinnati, Columbus and Toledo displayed greenhouse tomatoes in the basket in which they were delivered while in Cleveland approximately one-fourth were displayed in this manner. Three-fourths of the Cleveland stores displayed the greenhouse tomatoes loose on tables or racks (Table 18).

Frequency of Special Sales

Retail food stores in all four markets used special sales more frequently in promoting the sales of repacked than those of greenhouse tomatoes, (Table 19).

Table 19. Frequency of Feature Sales of Greenhouse and Repacked Tomatoes in Stores in Four Major Ohio Markets, October to December, 1953.

| Frequency of Special Sale | Greenhouse tomatoes | | | | | Repacked tomatoes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cleveland | Cincinnati | Columbus | Toledo | All Mkts | Cleveland | Cincinnati | Columbus | Toledo | All Mkts |
| | (number of stores) | | | | | | | | | |
| More often than once a month | 2 | 0 | 0 | 3 | 5 | 5 | 7 | 6 | 8 | 26 |
| once a month | 2 | 0 | 4 | 6 | 12 | 5 | 4 | 6 | 5 | 20 |
| Less than once a month | 6 | 6 | 5 | 7 | 24 | 2 | 4 | 3 | 3 | 12 |
| Never | 5 | 8 | 10 | 4 | 27 | 0 | 6 | 4 | 3 | 13 |
| All Stores | 15 | 14 | 19 | 20 | 68 | 12 | 15 | 19 | 19 | 71 |

Comments of Produce Managers

In the opinion of produce managers, greenhouse tomatoes were favored over repacks for flavor, quality or condition, and color. Repacked were favored over greenhouse tomatoes on the factors of price and handling (repacks required less handling and suffered less customer damage than greenhouse tomatoes) (Table 20).

Table 20. General Comments by Produce Managers Concerning Greenhouse and Repacked Tomatoes in Stores in Cleveland, Cincinnati, Columbus and Toledo, Ohio Markets, October to December, 1953.

| Remarks | Greenhouse tomatoes | | | | | Repacked tomatoes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cleveland | Cincinnati | Columbus | Toledo | All Mkts | Cleveland | Cincinnati | Columbus | Toledo | All Mkts |
| | (number of remarks) | | | | | | | | | |
| Better Flavor | 2 | 1 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 0 |
| Poor Flavor | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 4 |
| Better Quality or condition | 3 | 0 | 6 | 3 | 12 | 0 | 0 | 0 | 0 | 0 |
| Poor Quality or condition | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 5 | 4 | 18 |
| Bad Tomatoes in container | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 2 | 11 |
| Price too high | 0 | 6 | 1 | 3 | 10 | 0 | 2 | 0 | 0 | 2 |
| Tough skin | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 4 |
| Better Color | 3 | 1 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Riper | 0 | 0 | 2 | 0 | 2 | 6 | 3 | 3 | 5 | 17 |
| Require More care | 5 | 2 | 6 | 2 | 15 | 2 | 0 | 0 | 0 | 2 |
| More Customer Damage | 3 | 2 | 3 | 1 | 8 | 0 | 0 | 1 | 0 | 1 |
| Total Comments | 16 | 12 | 20 | 10 | 56 | 17 | 11 | 18 | 13 | 59 |

Repacked tomatoes were generally riper than the greenhouse product. This factor probably contributes to the higher percentage loss of repacked tomatoes, but may also provide a display with more customer appeal.